

**What is claimed is:**

1           1. A method for producing a high brightness luminescent material which is  
2 composed of a matrix substance which contains aluminate and a luminescent center  
3 which is a rare earth metal ion and/or transition metal ion, comprising:

4           a step for making an acidic solution of a solution of a water-based solvent  
5 containing aluminum alcoholate which is raw material for aluminate and a metal  
6 compound of a rare earth metal and/or transition metal which is raw material for said  
7 luminescent center;

8           a step for conducting a preliminary calcination of said acidic solution by heating  
9 to 900 degrees C – 1100 degrees C under oxidizing conditions; and

10          a step for conducting a main calcination in which calcination product obtained  
11 from said preliminary calcination is pulverized, and under reducing conditions, main  
12 calcination is conducted by heating to a temperature higher than the heating temperature  
13 of said preliminary calcination.

1           2. A method for producing a high brightness luminescent material as described in  
2 Claim 1, wherein:

3           pH of said acidic solution is between 1 and 7, inclusive.

1           3. A method for producing a high brightness luminescent material as described in  
2 Claim 1 or 2, wherein:

3           calcination temperature of said main calcination is 1400 degrees C to 1600  
4 degrees C, inclusive.

1           4. A method for producing a high brightness luminescent material as described in  
2 one of Claims 1-3, wherein:

3           said metal compound is a nitrate.

1           5. A method for producing a high brightness luminescent material as described in  
2 one of Claims 1-4, wherein:

3           said luminescent center contains at least one type of metal selected from the group  
4 consisting of Eu, Pm, Pr, Yb, Ce, Nd, Tb, Gd, and Er.

1           6. A method for producing a high brightness luminescent material as described in  
2 one of Claims 1-5, wherein:

3           said high brightness luminescent material is a BAM type luminescent material  
4 represented by  $\text{BaMgAl}_{10}\text{O}_{17}:\text{Eu}$ .

1           7. A method for producing a high brightness luminescent material as described in  
2 one of Claims 1-6, wherein:

3           a flux agent or a thickener is added to said water-based solvent solution.

1           8. A method for producing a high brightness luminescent material as described in  
2 Claim 7, wherein:

3            $\text{NH}_4\text{BF}_4$  is added as said flux agent.

1           9. A high brightness luminescent material obtained by a method for producing a  
2 high brightness luminescent material as described in one of Claims 1-8.

1            10. A high brightness luminescent material as described in Claim 7, wherein:  
2            said high brightness luminescent material is excited by vacuum ultraviolet  
3            radiation.